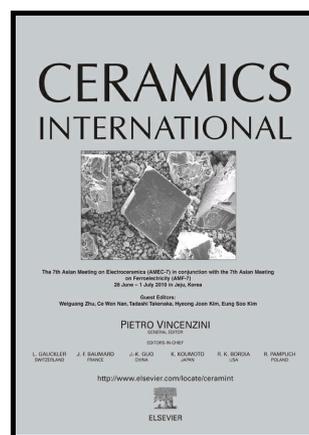


Author's Accepted Manuscript

Synthesis of Mn-CeO_x/Cordierite Catalysts Using Various Coating Materials and Pore-forming Agents for Non-methane Hydrocarbon Oxidation in Cooking Oil Fumes

Honghong Yi, Yonghai Huang, Xiaolong Tang, Shunzheng Zhao, Fengyu Gao, Xizhou Xie, Jiangen Wang, Zhongyu Yang



www.elsevier.com/locate/ceri

PII: S0272-8842(18)31346-4
DOI: <https://doi.org/10.1016/j.ceramint.2018.05.203>
Reference: CER118378

To appear in: *Ceramics International*

Received date: 21 April 2018
Revised date: 21 May 2018
Accepted date: 23 May 2018

Cite this article as: Honghong Yi, Yonghai Huang, Xiaolong Tang, Shunzheng Zhao, Fengyu Gao, Xizhou Xie, Jiangen Wang and Zhongyu Yang, Synthesis of Mn-CeO_x/Cordierite Catalysts Using Various Coating Materials and Pore-forming Agents for Non-methane Hydrocarbon Oxidation in Cooking Oil Fumes, *Ceramics International*, <https://doi.org/10.1016/j.ceramint.2018.05.203>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Synthesis of Mn-CeO_x/Cordierite Catalysts Using Various Coating Materials and Pore-forming Agents for Non-methane Hydrocarbon Oxidation in Cooking Oil Fumes

Honghong Yi^{a,b}, Yonghai Huang^a, Xiaolong Tang^{a,b*}, Shunzheng Zhao^{a,b}, Fengyu Gao^{a,b}, Xizhou Xie^a, Jiagen Wang^a, Zhongyu Yang^a

^a Department of Environmental Engineering, School of Energy and Environmental Engineering, University of Science and Technology Beijing, Beijing 100083, PR China

^b Beijing Key Laboratory of Resource-oriented Treatment of Industrial Pollutants, Beijing 100083, PR China

*Corresponding Author: Xiaolong Tang, Tel./fax:+86 010 62332747. E-mail address: txiaolong@126.com.

ABSTRACT

Cooking oil fumes (COFs) as an important source of volatile organic compounds (VOCs) in metropolitan areas is poisonous to the environment and human health, and the removal rate of Non-methane Hydrocarbon (NMHC) in COFs was used to verify the activity of catalysts made to depurate COFs. The textural properties of cordierite are limitation to the catalyst's performance. Therefore, in this paper, coating the cordierite to improve its surface properties was investigated. The experiment results and characterization data revealed that TiO₂ was a better coating material because of coating on TiO₂ can improve the surface morphology better than that of Al₂O₃. The SEM and BET data of the materials synthesized with different content of CTAB showed that 10wt% additive amount of pore-forming agent had a better textural properties than other additive amount of pore-forming agents. It is clear that the S_{BET} and D_V of the catalysts were significantly increased, and the catalyst exhibited smaller particle size and more developed pore structure after ultrasonic treatment which proving that ultrasound can enhance the catalyst's catalytic activity. It is obviously that the catalyst synthesized with CTAB had best pore structure and Mn₄Ce₁/Ti/NC-CTAB-U exhibited the best performance for catalytic combustion of

Download English Version:

<https://daneshyari.com/en/article/7886328>

Download Persian Version:

<https://daneshyari.com/article/7886328>

[Daneshyari.com](https://daneshyari.com)